

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-142197

(43)Date of publication of application : 17.05.2002

---

(51)Int.Cl. H04N 5/93

G10L 15/08

G10L 15/10

G10L 15/00

H04N 5/44

H04N 5/445

H04N 5/76

H04N 5/765

H04N 5/781

H04N 7/025

H04N 7/03

H04N 7/035

---

(21)Application number : 2000-334657 (71)Applicant : NEC CORP

(22)Date of filing : 01.11.2000 (72)Inventor : OTSUKA HIROAKI

---

(54) SYSTEM AND METHOD FOR PROGRAM PICTURE RECORDING BY USING  
PROGRAM INFORMATION AS WELL AS RECORDING MEDIUM WITH RECORDED  
PROGRAM PICTURE RECORDING CONTROL PROGRAM

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a system and a method for program picture recording by using program information wherein a user selects a keyword so as to be capable of reproducing a corresponding scene at once, by a method wherein, when a program which has been picture-recorded from a television broadcast is viewed, frame information corresponding to a specific keyword inside the program is stored.

**SOLUTION:** A television signal is separated into image/voice data and accompanying data. EPG data is extracted from the separated accompanying data, text data regarding the program is acquired, and the keyword is extracted and stored. The separated image/voice data is separated into image data and voice data, the text data contained in an image is extracted, and image frame information containing the keyword is stored when the keyword is contained. The text data contained in a voice is extracted, and voice frame information containing the keyword is stored when the keyword is contained.

---

#### LEGAL STATUS

[Date of request for examination] 22.10.2001

[Date of sending the examiner's decision 05.01.2004  
of rejection]

[Kind of final disposal of application other  
than the examiner's decision of rejection  
or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against  
examiner's decision of rejection]

[Date of extinction of right]

---

#### CLAIMS

---

[Claim(s)]

[Claim 1] It has the data processor which processes the television signal received from television broadcasting, and the store which memorizes the data after the processing. Said data processor A signal separation means to divide a television signal into an image/voice data, and accompanying data, An EPG data extraction means to

extract EPG (Electronic Program Guide) data from said accompanying data, A program information acquisition means to acquire the text data about a program from said EPG data, A keyword information extract means to extract a keyword from said text data and to memorize to said storage, The image / a voice separation means to divide said image/voice data into image data and voice data, When said image data are analyzed, it judges whether said keyword is contained in said image data and the keyword is contained in said image data An image analysis means to acquire the image frame information for specifying the image frame containing said keyword, and said image data and voice data with said image frame information The program image transcription system using the program information characterized by having the image / a sound signal storage means to memorize to said storage.

[Claim 2] When said voice data is analyzed, it judges whether said keyword is contained in said voice data and said keyword is contained It has a voice analysis means to acquire the voice frame information for specifying the voice frame containing the keyword. Said image / sound signal storage means said image data and voice data with said image frame information and voice frame information The program image transcription system using the program information according to claim 1 characterized by what is memorized to said storage.

[Claim 3] It is the program image transcription system which said EPG data extraction means was connected to network connection equipment, and used the program information according to claim 1 or 2 characterized by said EPG data extraction means acquiring EPG data from said signal separation means or said network connection equipment.

[Claim 4] The step which is the approach of making the program from television broadcasting corresponding to a keyword, and recording and searching it, and divides a television signal into an image/voice data, and accompanying data, The step which extracts EPG data from said accompanying data, and acquires the text data about a program from the EPG data, The step which extracts a keyword from the text data about said program, and is memorized, The step which divides said image/voice data into image data and voice data, The text data contained in an image by analyzing said image data is extracted. It searches whether said keyword is contained in this extracted text data. The program image transcription approach of having used the program information characterized by including the step which memorizes the image frame information for specifying the image frame which contains the keyword when the keyword is contained.

[Claim 5] The program image transcription approach of having used the program information according to claim 4 characterized by including further the step which memorizes the voice frame information for specifying the voice frame which contains that keyword when the text data contained in voice by analyzing said voice data is extracted, it searches whether said keyword being contained in this extracted text data and that keyword is contained.

[Claim 6] It is the record medium which recorded the computer program which the program from television broadcasting is made to correspond to a keyword, and carries out record / retrieval control. Divide a television signal into an image/voice data, and accompanying data, and EPG data are extracted from said accompanying data. Acquire the text data about a program from the EPG data, and a keyword is extracted from the text data about said program. Memorize, divide said image/voice data into image data and voice data, and the text data contained in an image is extracted from said image data. It searches whether said keyword is contained in this extracted text data. When the keyword is contained, memorize the image frame information for specifying the image frame containing the keyword, and the text data contained in voice is extracted from said voice data. It searches whether said keyword is contained in this extracted text data. The record medium which recorded the program image transcription control program using the program information characterized by memorizing the voice frame information for specifying the voice frame which contains the keyword when the keyword is contained.

---

## DETAILED DESCRIPTION

---

### [Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the record medium which recorded the program image transcription control program on the program image transcription system and approach list which used retrieval and reproducible program information for the image recorded on videotape using the keyword about the program image transcription and regeneration system of digital television broadcast.

[0002]

[Description of the Prior Art] In digital television broadcast, a viewer can be told about program information, such as a program title and its broadcast time of day, by EPG (Electronic Program Guide). In the TV program image transcription system by this EPG, the broadcasting station and broadcast time of day of a TV program are acquired from the information on EPG, and it can use in order to register reservation into a videocassette recorder.

[0003] As the example, the image transcription is controlled by the image transcription reservation equipment indicated by JP,11-234612,A using EPG information. For this reason, it has a separation means to extract EPG data, an indicative-data selection means to display EPG, a reservation-list selection means to choose EPG data, and the image transcription control means that carries out image transcription control of the selected program, and is constituted. The program

information chosen from EPG is notified to an image transcription control means, and records on videotape by controlling VTR.

[0004]

[Problem(s) to be Solved by the Invention] However, there were the following troubles in this conventional technique. When viewing and listening to the program in which the user was recorded on videotape, it could not but move to the desired frame, having performed playback from the head or checking an image with a rapid traverse. For this reason, a user was not able to view and listen to a program efficiently.

[0005] Then, this invention makes it a technical problem to offer the program image transcription system and approach the user used the program information which can reproduce immediately the scene which chooses a keyword and corresponds by memorize the image containing the keyword, or the frame information on audio, when the keyword of the program include in EPG exists, in case a program is record on videotape from television broadcasting.

[0006]

[Means for Solving the Problem] The data processor which processes the television signal which received this invention from television broadcasting in order to solve an above-mentioned technical problem, It has the store which memorizes the data after the processing. Said data processor A signal separation means to divide a television signal into an image/voice data, and accompanying data, An EPG data extraction means to extract EPG data from said accompanying data, A program information acquisition means to acquire the text data about a program from said EPG data, A keyword information extract means to extract a keyword from said text data and to memorize to said storage, The image / a voice separation means to divide said image/voice data into image data and voice data, When said image data are analyzed, it judges whether said keyword is contained in said image data and the keyword is contained in said image data An image analysis means to acquire the image frame information for specifying the image frame containing said keyword, When said voice data is analyzed, it judges whether said keyword is contained in said voice data and said keyword is contained It has a voice analysis means to acquire the voice frame information for specifying the voice frame containing the keyword, and the image / sound signal storage means of memorizing said image data and voice data to said storage with said image frame information and voice frame information.

[0007] Namely, in the system which has the function and the image transcription function of a program which acquire EPG, this invention extracts a keyword from the text data of the program acquired from EPG, and measures it with the text data obtained from the result of having analyzed the image or voice within an image transcription program. When a keyword is found, the image in which a keyword is contained, or the frame information on audio is memorized as a scene of choice. When a user views and listens to this program recorded on videotape, it can move to the image of the scene of choice, or an audio frame by choosing a keyword.

[0008]

[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained with reference to a drawing.

[0009] Drawing 1 shows the configuration of the gestalt of operation concerning this invention. It is constituted including the broadcast receiving set 1 which receives digital television broadcast, the data processor 2 which processes the received television signal by program control, and the storage 3 which memorizes the processed data.

[0010] A data processor 2 is a digital signal processor containing CPU, memory, etc., and carries out signal processing by program control. This equipment functions as the signal separation means 21, the EPG data extraction means 22, the image / voice separation means 23, the voice analysis means 24, the image analysis means 25, the image / sound signal compression means 26, the program information acquisition means 27, and a keyword information extract means 28.

[0011] The signal separation means 21 divides into an image/voice data, and accompanying data the television signal received with the broadcast receiving set 1. The EPG data extraction means 22 extracts EPG data from the separated accompanying data.

[0012] An image / voice separation means 23 divides the image/voice data from the signal separation means 21 into image data and voice data. The image analysis means 24 analyzes the separated image data, and judges with pattern matching whether the keyword memorized by the keyword information storage section 31 is contained in image data. The image frame information for specifying the image frame which contains the keyword in an image / sound signal compression means 26 is sent noting that the keyword is contained, if in agreement.

[0013] The voice analysis means 25 analyzes the separated voice data, and judges with pattern matching whether the keyword memorized by the keyword information storage section 31 is contained in voice data. The voice frame information for specifying the voice frame which contains the keyword in an image / sound signal compression means 26 is sent noting that the keyword is contained, if in agreement.

[0014] An image / sound signal compression means 26 performs compression for memorizing the image data and voice data which are sent from an image / voice separation means 23 in the animation data storage section 32. Moreover, when the image or voice frame information which contains a keyword from the image analysis means 24 and the voice analysis means 25 has been sent, these are memorized in the animation data storage section 32. That is, an image / sound signal compression means 26 functions as an image / a sound signal storage means.

[0015] The program information acquisition means 27 acquires the text data about a program from the EPG data extracted with the EPG data extraction means 22. The keyword information extract means 28 performs a word extract from the text data of this acquired program, and extracts the word which serves as a keyword further.

[0016] A store 3 consists of a hard disk or a DVD-RAM, and is equipped with the keyword information storage section 31 and the animation data storage section 32. The keyword information storage section 31 has memorized the word acquired from the keyword information extract means 28 as keyword information. The animation data storage section 32 memorizes the image and voice frame information containing a video data and a keyword.

[0017] In addition, the broadcast receiving set 1, a data processor 2, and storage 3 can also be constituted as one. Moreover, the program to which these processings are made to carry out to a data processor 2 is also transplantable to other processors with record media, such as a floppy (trademark) disk and CD-ROM.

[0018] Next, actuation of the gestalt of this operation is explained to a detail with reference to the flow chart shown in drawing 2 .

[0019] The television signal received with the broadcast receiving set 1 is supplied to the signal separation means 21. The signal separation means 21 divides this signal into an image/voice data, and accompanying data, and the former is supplied to an image / voice separation means 23, and it supplies the latter to the EPG data extraction means 22. EPG data are extracted from accompanying data by the EPG data extraction means 22, and the text data about a program is acquired from EPG data with the program information acquisition means 27 (step S1). A keyword is extracted from the text data of the acquired program by the keyword information extract means 28. The extracted keyword is memorized by the keyword information storage section 31 (step S2).

[0020] The image/voice data separated with the signal separation means 21 are separated into image data and voice data by an image / voice separation means 23. Image analysis of the separated image data is carried out with the image analysis means 24, and the text data contained in an image is extracted (step S4). The keyword memorized by the keyword information storage section 31 is contained in this extracted text data, or it searches (step S3). When contained in the text data from which the keyword was extracted, the image frame information for specifying (step S6) and the image frame containing the keyword is memorized in the animation data storage section 32 (step S11).

[0021] Voice analysis of the separated voice data is carried out with the voice analysis means 25, and the text data contained in voice is extracted (step S8). The keyword memorized by the keyword information storage section 31 is contained in this extracted text data, or it searches (step S7). When contained in the text data from which the keyword was extracted, the voice frame information for specifying (step S10) and the voice frame containing the keyword is memorized in the animation data storage section 32 (step S11).

[0022] Next, drawing 3 shows the configuration of the gestalt of other operations concerning this invention. In addition to the configuration shown in drawing 1 , the gestalt of this operation has a communication device 4. A communication device 4 is

network connection equipment which is connected to a public network or a dedicated line, accesses the Internet or other networks, and acquires EPG data. For example, if the homepage of a broadcasting station which a user wishes from a communication device 4 is accessed, the EPG data of the program of a broadcast schedule will be offered at the broadcasting station. Compared with the EPG data transmitted to a television signal by accompanying, the contents add further much information and are offered. When transmitting EPG data with a television signal, in order to make EPG data accompany an image and voice data, the amount of information which can be transmitted has a limit, but since there is no limit in the amount of information in distribution by the Internet, a user can be provided with more information. In addition, except that the EPG data extraction means 22 acquires program information also from a communication device 4 via the Internet, since actuation of the gestalt of this operation is the same as the actuation shown in drawing 2, it omits explanation.

[0023] It not only acquires program information from television broadcasting, but with the gestalt of this operation, program information is acquirable from the Internet. The keyword information used for retrieval increases and the range of the keyword information which a user can choose can be extended because the program amount of information for extracting a keyword increases.

[0024]

[Effect of the Invention] As explained above, in case this invention views and listens to the program recorded on videotape from television broadcasting, a user can reproduce the scene relevant to the keyword quickly only by choosing a keyword by memorizing the frame information corresponding to a specific keyword within the program.

---

## DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the configuration of the gestalt of operation concerning this invention.

[Drawing 2] It is the flow chart which shows actuation of the gestalt of operation concerning this invention.

[Drawing 3] It is the block diagram showing the configuration of the gestalt of other operations concerning this invention.

[Description of Notations]

1 Broadcast Receiving Set

2 Data Processor

3 Storage

- 4 Communication Device**
- 21 Signal Separation Means**
- 22 EPG Data Extraction Means**
- 23 Image / Voice Separation Means**
- 24 Voice Analysis Means**
- 25 Image Analysis Means**
- 26 Image / Sound Signal Compression Means**
- 27 Program Information Acquisition Means**
- 28 Keyword Information Extract Means**
- 31 Keyword Information Storage Section**
- 32 Animation Data Storage Section**

---